

## CONTENTS OF SITE INVESTIGATION REPORTS FOR PETROLEUM CONTAMINATED SITES

For Submittals to:  
The Department of Natural Resources  
&  
The Department of Commerce

October 2001

RR Publication #RR-628



**PURPOSE:** This guidance contains requirements found in NR 716, NR 746/Comm 46 [hereafter referenced as NR 746 for brevity] and Comm 47, which specifically pertain to the contents of site investigation reports for petroleum tank discharge sites. This guidance does not apply to other types of sites.

**DISCLAIMER:** *This document is intended solely as guidance and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.*

**Site Investigation Reports:** A report for soil or groundwater contamination is required by ch. NR 716. A site investigation report is the basis for all subsequent decisions regarding cleanup of a contaminated site. A complete and well-organized report allows state regulators to make better and faster decisions including, in some cases, case closure. If a case closure request will be made at the end of the site investigation, see NR 746.07(1) and publication RR-614, *Interim Guidance on Natural Attenuation for Petroleum Releases*, before completing the site investigation report. Use the case closure request form (Form 4400-202) required by NR 726.05(2).

**PECFA and Petroleum Tank Discharge Sites:** The Petroleum Environmental Cleanup Fund Act (PECFA) is Wisconsin's reimbursement program for eligible cleanup costs at petroleum tank discharge sites. Some basic PECFA considerations are included in Attachment A of this document, but please see the Department of Commerce web site listed below for additional information about PECFA.

### On-line Information Sources:

- Administrative rules: <http://www.legis.state.wi.us/rsb/code/codtoc.html>  
NR 700 Series (includes NR 746)  
Comm 47, PECFA  
NR 140, Groundwater Quality  
NR 141, Groundwater Monitoring Well Requirements  
NR 149, Laboratory Certification
- Dept. of Commerce web site: <http://www.commerce.state.wi.us/COM/Com-Petroleum.html>  
Information on PECFA, staff contacts, etc.
- Dept. of Natural Resources web site: <http://www.dnr.state.wi.us/org/aw/rr/index.htm>  
Information on environmental cleanup, staff contacts, etc. (Use the "Publications" button for natural attenuation technical guidance, case summary and close out form, etc.)  
Certified Laboratories: <http://www.dnr.state.wi.us/org/es/science/lc/search/>

**Organization of Site Investigation Reports:** Site investigation reports should be organized into the following sections. The "Site Investigation Report Contents" table and attachments that follow this outline provide additional details about the information needed in each of the following sections:

Cover Letter and Title Page

Table of Contents

Executive Summary

Sections of Report:

Section 1: Introduction and Background

- 1.1 Responsible Party Information
- 1.2 Consultant Information
- 1.3 Site Location
- 1.4 Site History

Section 2: Geology and Receptors

- 2.1 Regional and Local Geology and Hydrogeology
- 2.2 Receptors

Section 3: Site Investigation Results, Risk Criteria

- 3.1 Methods of Investigation
- 3.2 Data Discussion
- 3.3 Permeability and Hydraulic Conductivities (NR 746)
- 3.4 Discussion of Results
- 3.5 Contaminant Migration (NR 746)
- 3.6 Risk Screening Criteria (NR 746)
- 3.7 Agency Jurisdiction (NR 746)

Section 4: Conclusions

- 4.1 Summary of Results and Recommendations
- 4.2 Site Closure Decisions (NR 746)

Section 5: References

Section 6: Figures

- Regional Location Map
- Site and Property Maps
- Soil Sample Results Summary Maps
- Geologic Cross Sections
- Hydrogeologic Maps

Section 7: Data Tables, Graphs and Statistical Analyses

- Soil Analytical Results Summary
- Groundwater Elevation and Free Product Interim Action Results
- Groundwater Analytical Results Summary
- Graphs and Statistical Analyses

Report Appendices:

- A Methods of Investigation
- B Analytical Methods and Laboratory Data Reports
- C Well and Borehole Documentation
- D Waste Disposal Documentation
- E Other Documentation

NR 716.01 states:

***"Nothing in this chapter shall be construed to require plans or reports that are more detailed or complex than is justified by the known scope of contamination or the complexity of the site or facility."***

## Site Investigation Report Contents

Note: Items listed here are **reporting** requirements. Other rule requirements may apply.

Sec	Item	Code Reference	Contents
--	Cover Letter and Title Page	NR 716.15(2)(a)  <i>recommended</i> NR 712.09	<input type="checkbox"/> Include identification numbers (e.g., BRRTS # and Comm #), purpose of the submittal, and desired agency response <input type="checkbox"/> Include site name and address <input type="checkbox"/> Professional certification
--	Table of Contents	<i>recommended</i>	<input type="checkbox"/> Organization of the report (Sections 1-7 and appendices)
--	Executive Summary  [Provide a definitive statement for each bullet point. For example, if no off-site potable wells are present, indicate as such with a statement]	<i>recommended</i>  "  "  NR 716.15(2)(c)  <i>recommended</i>  <i>recommended</i>  NR 716.15(2)(c)  <i>recommended</i>  <i>recommended</i>  NR 716.15(2)(c)  <i>recommended</i>	<input type="checkbox"/> Summarize Site History: land use, ownership, property and contaminant source locations, other potential sources <input type="checkbox"/> Brief Environmental History: historic releases, previous investigations, emergency, interim, or remedial actions conducted, reason for current investigation <input type="checkbox"/> Summarize Site Soil Conditions: type(s), stratification, depth to bedrock <input type="checkbox"/> Summarize Soil Contamination: source and type(s) of contaminants (petroleum and non-petroleum), where detected - accessible and inaccessible <input type="checkbox"/> NR 746.06 risk screening, including evaluation of groundwater and direct contact risks <input type="checkbox"/> Summarize Groundwater Conditions: depth to groundwater, flow direction, vertical gradients or perched layers, preferential migration pathways <input type="checkbox"/> Summarize Groundwater Contamination: type(s) of contaminants (petroleum and non-petroleum), where detected, and migration <input type="checkbox"/> Evaluation of Comm 47.337 environmental factors and NR 746.06 risk screening criteria <input type="checkbox"/> Summarize impacts and potential impacts to on-site and off-site wells and other receptors, such as surface waters, and vapor hazards in buildings and utilities <input type="checkbox"/> Conclusions, including jurisdiction and recommendations (i.e., send to public bidding) <ul style="list-style-type: none"> <li>• Summarize the risk factors that determine site jurisdiction</li> </ul>
<b>Section 1: Introduction and Background</b>			
1.1	Responsible Person Information	NR 716.15(2)(d)2  <i>recommended</i>	<input type="checkbox"/> Name, address and telephone number of the responsible person(s) and property owner (if different from responsible person) <input type="checkbox"/> Other concerned persons: adjacent property owners, mortgage holder, attorney, etc.
1.2	Consultant Information	NR 716.15(2)(d)3	<input type="checkbox"/> Name, address and telephone number of consultant(s)

<b>1.3</b>	Site Location	NR 716.15(2)(d)4 “ NR 716.15(2)(d)7. & NR 716.15(2)(k)  NR 716.15(2)(j)1. NR 716.15(2)(j)2.  NR 716.15(2)(j)3.	<input type="checkbox"/> Street address and municipality <input type="checkbox"/> Geographic location by quarter-quarter section, township, range and county <input type="checkbox"/> Geographic position for all properties within or partially within the contaminated site boundaries, including name of county where site is located; geographic coordinate collection method & scale or resolution of original source of geographic position for on-screen digitizing <input type="checkbox"/> A copy of the most recent deed with the legal description for all properties <input type="checkbox"/> A copy of the certified survey map or relevant portion of the recorded plat map, if referred to in the legal description <input type="checkbox"/> The parcel identification number for each property if the county uses parcel i.d. numbers Note: NR 726.05(3)4. Requires documents no larger than 8 1/2” x14” for scanning into GIS Registry.
<b>1.4</b>	Site History	NR 716.15(2)(e) “ NR 708.15 NR 716.15(2)(e)1	<input type="checkbox"/> Historical uses of the property <input type="checkbox"/> Contaminant discharges and dates <input type="checkbox"/> Emergency and interim actions taken <input type="checkbox"/> Off-site sources of contamination
<b>Section 2: Geology and Receptors</b>			
<b>2.1</b>	Regional & Local Geology & Hydrogeology	NR 716.(2)(g)1  “  ”	<input type="checkbox"/> Geologic and hydrogeologic characteristics of the site <input type="checkbox"/> Media affected or potentially affected by contamination, including bedrock <input type="checkbox"/> Proximity to other contaminant sources

2.2	Receptors	NR 716.15(2)(g)1  “ “ <i>recommended</i>   <i>recommended</i>	<input type="checkbox"/> Potential or known impacts to receptors: <ul style="list-style-type: none"> <li>• Buildings, basements, sumps, etc.</li> <li>• Existing and former utility corridors (include a statement concerning the depth of the utility corridor)</li> <li>• Water supply wells (for both municipal and private wells, a definitive statement from the consultant representing his or her professional opinion on the presence and location of any receptor wells. Include analyses of on-site water supply wells)</li> </ul> <input type="checkbox"/> Impacts to habitats, wetlands, outstanding resource waters (NR 102.10 & 102.11) <input type="checkbox"/> Locations of water supply wells within 1200 feet of the edge of contamination. <input type="checkbox"/> For municipal wells within 1200 feet of the edge of contamination: <ul style="list-style-type: none"> <li>• Well constructor's forms and/or sample logs (included in appendix), labeled to correspond with mapped locations</li> <li>• Confirmation of well locations by phone contact with the municipal utility</li> </ul> <input type="checkbox"/> For private wells within 1200 feet of the edge of contamination: <ul style="list-style-type: none"> <li>• Well constructor's forms and/or sample logs (included in appendix), labeled to correspond with mapped locations</li> <li>• For areas not on municipal well service, field verification of well locations within 1200 feet of the edge of contamination</li> <li>• For areas on municipal well service, confirmation by phone contact with the municipal utility or health department to identify private wells within 1200 feet of the edge of contamination</li> </ul>
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### Section 3: Site Investigation Results, Risk Criteria

3.1	Methods of Investigation	NR 716.15(2)(g)2 <i>recommended</i>  NR 716.15(2)(g)3 <i>recommended</i>	<input type="checkbox"/> Dates and types of field work, sequence of activities <input type="checkbox"/> Site access problems [NR 716.11(4) requires that the Department be notified within 30 days if access needed to complete the site investigation is denied] <input type="checkbox"/> Analytical methods <input type="checkbox"/> Deviations from standard practices, including the workplan, and reasons for incomplete sample collection
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<b>3.2</b>	Data Discussion  <b>See Attachment B for Data Table Presentations</b>  <i>(provide tables in Section 7 of report)</i>	NR 716.15(2)(g)3 “ “ “ ” “ “ “ <i>recommended</i>	<input type="checkbox"/> Water supply well analyses <input type="checkbox"/> Field measurements and observations <input type="checkbox"/> Sample locations, depths and sampling dates <input type="checkbox"/> Sample parameters, specify filtered samples <input type="checkbox"/> Other sampling data sources (sumps, extraction wells, etc.) <input type="checkbox"/> Observation of other contaminants <input type="checkbox"/> Laboratory name <input type="checkbox"/> Analytical results <input type="checkbox"/> Number of groundwater sampling events <i>[NR 726.05(3)(a) requires at least 4 quarterly rounds for closure, unless another schedule is approved]</i>
<b>3.3</b>	Permeability and Hydraulic Conductivities	NR 746.05(2)(b) NR 716.11(3)(c)  NR 746.05(2)(a)5	<input type="checkbox"/> Determine hydraulic conductivities of materials where contaminated groundwater is found, per NR 716 or another approved method <input type="checkbox"/> Determine whether the groundwater plume is contained within low permeability material (less than or equal to $10^{-5}$ cm/sec) or extends into permeable material
<b>3.4</b>	Discussion of Results	NR 716.15(2)(g)2 <i>recommended</i>  NR 716.15(2)(g)4 “  NR 716.15(2)(g) “ “ <i>recommended</i>  NR 708.15(1)	<input type="checkbox"/> Sequence of site investigation activities <input type="checkbox"/> Flagged data (i.e., exceeds holding time, elevated detection limits) <input type="checkbox"/> Evaluation of inconsistencies between field observations and laboratory data <input type="checkbox"/> Recommended re-sampling or quality control measures <input type="checkbox"/> Lateral and vertical extent and degree of soil and groundwater contamination <input type="checkbox"/> Depth to groundwater <input type="checkbox"/> Impacts to all affected receptors <input type="checkbox"/> Risks to potential receptors (including direct contact pathway) <input type="checkbox"/> Free product interim action report, if applicable and not previously submitted
<b>3.5</b>	Contaminant Migration	NR 746.05(2)(a)6 NR 716.11(5)(a) NR 746.05(2)(a)7 NR 716.11(5)(a)  NR 746.05(4)a & NR 746.05(4)b	<input type="checkbox"/> Evidence of contaminant migration within a utility corridor or permeable soil layer <input type="checkbox"/> Evidence of contaminant migration or imminent migration into drain tile, sumps or other points of entry into buildings <input type="checkbox"/> Determine whether the groundwater plume margin is expanding at sites where the plume includes permeable materials <i>[If there is no evidence of plume margin expansion at sites with contamination only in low permeability materials and the most recent release is &gt;10 years old, this determination will be assumed]</i>

3.6	Risk Screening Criteria	<p>NR 746.06(2)(a) &amp; Comm 47.337(3)</p> <p>NR 746.06(2)(b-i)</p>	<ul style="list-style-type: none"> <li>❑ Determine whether these Environmental Factors are present:               <ul style="list-style-type: none"> <li>• Documented expansion of plume margin</li> <li>• Verified contaminant concentration in a private or public potable well greater than the PAL</li> <li>• Contamination within bedrock or within one meter of bedrock</li> <li>• Undissolved petroleum product present with a thickness of 0.01 feet or more, verified by more than one measurement event</li> <li>• Documented contaminant discharge to a surface water or wetland</li> </ul> </li> <li>❑ Determine whether these risk criteria are present:               <ul style="list-style-type: none"> <li>• Soil contamination that exceeds the soil screening levels in Table 1 of NR 746.06</li> <li>• Soil contamination within 4 feet of the surface that exceeds the direct contact concentrations in Table 2 of NR 746.06</li> <li>• If identified by the State as contaminants of concern, evaluation of other potential human health risks from substances within 4 feet of the surface</li> <li>• Contamination from releases &lt;10 years old</li> <li>• Evidence of contaminant migration within a utility corridor or permeable soil layer</li> <li>• Evidence of contaminant migration or imminent migration into drain tile, sumps or other points of entry into buildings</li> <li>• ES is attained or exceeded within 1,000 feet of a well operated by a public utility</li> <li>• ES is attained or exceeded within 100 feet of any well used for human consumption</li> </ul> </li> </ul>
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3.7	Agency Jurisdiction	NR 746.03(7)  <i>recommended</i>	<input type="checkbox"/> Determine whether any of these high risk criteria are present: <ul style="list-style-type: none"> <li>• Verified contamination in a private or public potable well that attains or exceeds the PAL</li> <li>• Undissolved petroleum product with a thickness of 0.01 feet or more in more than one sampling event</li> <li>• ES is attained or exceeded within 1,000 feet of a well operated by a public utility</li> <li>• ES is attained or exceeded within 100 feet of any well used for human consumption</li> <li>• ES exceedence in fractured bedrock</li> </ul> <input type="checkbox"/> Provide status of non-petroleum contamination, if present
<b>Section 4: Conclusions</b>			
4.1	Summary of Results and Recommendations	NR 716.15(2)(l)  <i>recommended</i>  <i>recommended</i>	<input type="checkbox"/> Summary of results discussion <ul style="list-style-type: none"> <li><input type="checkbox"/> Recommendations for PECFA eligible tank systems (i.e., public bid for remedy, or closure)</li> <li><input type="checkbox"/> Recommendation for all other tank systems/sites (i.e., further action/next submittal or closure)</li> </ul>



4.2	Site Closure Decisions	NR 746.07(1)	<p>Closure consideration at completion of investigation For sites with <u>soil contamination only</u>:</p> <ul style="list-style-type: none"> <li>❑ Satisfies the risk screening criteria (Section 3.6, above)</li> <li>❑ Meets the requirements of NR 726</li> <li>❑ There is at least a 5 foot separation between soil contamination and the water table; OR</li> </ul> <hr/> <p>NR 746.07(2)</p> <p>For sites with <u>groundwater contamination contained within low permeability materials</u>:</p> <ul style="list-style-type: none"> <li>❑ Satisfies the risk screening criteria (Section 3.6, above)</li> <li>❑ Meets the requirements of NR 726</li> <li>❑ There is at least a 5 foot separation between the contamination in low permeability material and any underlying or downgradient permeable material</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>❑ One of the following requirements is satisfied: <ul style="list-style-type: none"> <li>• All concentrations in permeable materials are below PALs, or</li> <li>• Concentrations in permeable materials are below the ES and any PAL exceedences have been granted an exemption, or</li> <li>• One of the following tests has been satisfied: Minimum of 4 sampling rounds free of seasonal variation and statistical confirmation that ES exceedences show declining concentrations, or statistical confirmation that ES exceedences demonstrate declining concentrations; OR</li> </ul> </li> </ul> <hr/> <p>NR 746.07(3)</p> <p>For sites with <u>groundwater contamination (PAL&lt;Conc.&lt;ES) contained within permeable materials</u>:</p> <ul style="list-style-type: none"> <li>❑ Satisfies the risk screening criteria (Section 3.6, above)</li> <li>❑ Meets the requirements of NR 726</li> <li>❑ PAL exemption is granted; OR</li> </ul> <hr/> <p>NR 746.07(4)</p> <p>For sites with <u>groundwater contamination (Conc.&gt;ES) contained within permeable materials</u>:</p> <ul style="list-style-type: none"> <li>❑ Satisfies the risk screening criteria (Section 3.6, above)</li> <li>❑ Meets the requirements of NR 726</li> <li>❑ Satisfies a statistical test (i.e., Mann-Kendall or Mann-Whitney U tests);OR</li> </ul> <hr/> <p>NR 746.07(5)</p> <p>Closure under NR 726</p>
Section 5: References (self-explanatory)			

Section 6: Figures			
--	Regional Location Map	NR 716.15(2)(d)5	<input type="checkbox"/> USGS quadrangle map (7.5 minute quadrangle)
--	Site and Property Maps (include historical structures & land use)  <i>See footnote below for map requirements</i>	NR 716.15(2)(d)6 “ “ “ “ <i>recommended</i> NR 716.15(2)(e)1  <i>recommended</i>  "	<input type="checkbox"/> Property lines, roads and buildings <input type="checkbox"/> Surface waters <input type="checkbox"/> Underground utilities <input type="checkbox"/> Water supply wells within 1200 ft of contamination <input type="checkbox"/> Adjacent land use <input type="checkbox"/> Known and potential hazardous substances <input type="checkbox"/> Note surface cover type(s) <input type="checkbox"/> Contaminant source locations (e.g., spills, tanks and piping, disposal areas) <input type="checkbox"/> Pre-site investigation sample locations (all soil and groundwater sample locations) <input type="checkbox"/> Site Investigation sample locations
--	Soil Sample Results Summary Maps	NR 716.15(2)(g)3  <i>recommended</i>	<input type="checkbox"/> Map of all sample locations, field measurements and summary of laboratory analytical sample results (including soil sample depths) <input type="checkbox"/> Indicate areas that exceed RCLs
--	Geologic Cross Sections	NR 716.15(2)(g)6 NR 716.15(2)(h)2  “ “ “ <i>recommended</i> “ “	<input type="checkbox"/> Geologic cross sections for sites with two or more soil borings <input type="checkbox"/> Reduced inset map of site layout on the cross sections, showing locations of transects <input type="checkbox"/> Dates of field work <input type="checkbox"/> Stratigraphy <input type="checkbox"/> Screened intervals of wells <input type="checkbox"/> High and low water table elevation surfaces <input type="checkbox"/> Field screening results <input type="checkbox"/> Representative laboratory analytical results (analytes of concern) and depiction of contaminant plume

--	Hydrogeologic Maps  <i>See footnote below for map requirements</i>	NR 716.15(2)(g)5 & NR 716.15(2)(h)1.e  "       NR 716.15(2)(g)7 recommended " "	<input type="checkbox"/> Water table map for sites with 3 or more wells <ul style="list-style-type: none"> <li>• Water table elevations measured on the same day</li> <li>• Dates of measurements</li> <li>• Direction of flow for a representative amount of sample events (provide a sufficient number of flow maps that reflect the variability present)</li> </ul> <input type="checkbox"/> Potentiometric surface maps, when included: <ul style="list-style-type: none"> <li>• Water table elevations measured on the same day</li> <li>• Date of measurements</li> <li>• Direction of flow for each sampling date (provide a sufficient number of flow maps that reflect the variability present)</li> <li>• Measurements from similar screen lengths in the same geologic zone and depth</li> <li>• Vertical gradients</li> <li>• Confining layers</li> </ul> <input type="checkbox"/> Isoconcentration maps where data are sufficient: <ul style="list-style-type: none"> <li>• Substance and concentrations</li> <li>• Impacted hydrogeologic unit(s)</li> <li>• Dates and units of measure</li> </ul>
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#### Footnotes for Figures: Map and Visual Aid Requirements

Requirements for quality of all maps and visual aids	recommended " " NR 716.15(2)(h) " " " " " "	<input type="checkbox"/> Site name and location <input type="checkbox"/> Identification of all sample points <input type="checkbox"/> 11"x17" maximum page size <input type="checkbox"/> Appropriate scale to show required details <input type="checkbox"/> Figure #, title, north arrow <input type="checkbox"/> Legend of symbols <input type="checkbox"/> Horizontal and vertical scales <input type="checkbox"/> Date and source, if not original <input type="checkbox"/> National geodetic survey elevations <input type="checkbox"/> Use a distinguishing symbol (i.e., dashed line) for inferred conditions
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#### Section 7: Data Tables, Graphs and Statistical Analyses

--	Data tables (See Attachment B)	NR 716.15(2)(g)3  NR 720.19(7)	<input type="checkbox"/> Tables of cumulative sample results and field measures - soil, groundwater, product <input type="checkbox"/> Calculated site specific RCLs, if applicable
--	Graphs (See Attachment B)	recommended   "	<input type="checkbox"/> Graph of concentration over time for each major contaminant in each well along the centerline of the plume ( <u>contaminant concentrations should be plotted together with water levels</u> ) <input type="checkbox"/> Graph of concentration over distance along the centerline of the plume

--	Statistical Analyses	NR 746.07(4)(c)	<input type="checkbox"/> Statistical Analyses (e.g., Mann-Kendall, Mann-Whitney U test, etc.)
<b>Report Appendices</b>			
<b>A</b>	Methods of Investigation	NR 716.15(2)(f) “ “ “ <i>recommended</i> NR 716.15(2)(f) <i>recommended</i>	<input type="checkbox"/> Subsurface boring and probe methods <input type="checkbox"/> Monitoring well construction, installation and development procedures <input type="checkbox"/> Well and aquifer test methods <input type="checkbox"/> Modeling techniques, if used <input type="checkbox"/> Sensitivity analysis of modeling results <input type="checkbox"/> Sample collection, handling and analysis <input type="checkbox"/> Description of elevation survey and survey benchmark location
<b>B</b>	Analytical Methods & Laboratory Data Reports	NR 716.15(2)(g)3 “ “ <i>recommended</i>	<input type="checkbox"/> Sample extraction and analysis dates <input type="checkbox"/> Analytical methods <input type="checkbox"/> Method detection limits <input type="checkbox"/> Laboratory analytical data sheets
<b>C</b>	Well and Borehole Documentation	NR 716.15(2)(i) “ “ “ “	<input type="checkbox"/> Form 4400-89, groundwater monitoring well information <input type="checkbox"/> Form 4400-113A, monitoring well construction <input type="checkbox"/> Form 4400-113B, monitoring well development <input type="checkbox"/> Form 4400-122, soil boring logs <input type="checkbox"/> Form 3300-5B (when relevant), well/drillhole/borehole abandonment
<b>D</b>	Waste Disposal Documentation	<i>recommended</i> “ “ “	<input type="checkbox"/> Scale tickets for landfilled soil <input type="checkbox"/> Pumping receipts for liquid removals <input type="checkbox"/> Tank and sludge disposal <input type="checkbox"/> Disposal records for containerized solid and liquid wastes
<b>E</b>	Other Documentation	<i>recommended</i>	<input type="checkbox"/> Other information referenced in the report (e.g. calculations, letters, phone conversations, photos)

#### Submittals:

1. For contamination exclusively associated with petroleum storage tank products that display any of the "high-risk" jurisdictional criteria, send site investigation reports to DNR (include the BRRTS #). The risk criteria are listed in Section 3.7. To facilitate the PECFA public bidding process, also send one copy to the Department of Commerce.
2. For contamination exclusively associated with petroleum storage tank products that do not display any of the "high-risk" jurisdictional criteria, send one copy of the report to the Department of Commerce (include Commerce claim number, if assigned).
3. For site investigations that indicate soil or groundwater contamination by one or more hazardous substances other than petroleum products discharged from a petroleum storage tank that are commingled with petroleum storage tank contamination, send reports to DNR. To facilitate the PECFA public bidding process, also send one copy to the Department of Commerce.
4. For site investigations that indicate soil or groundwater contamination by one or more hazardous substances other than petroleum products discharged from a petroleum storage tank but where that plume is not commingled with a plume from a petroleum storage tank (and where there are no "high-risk" criteria associated with the petroleum storage tank plume), send reports to Commerce and to the DNR. Request transfer of the petroleum contamination case to Commerce.

**Note: If the site investigation report is sent to Commerce, a copy of the cover letter that states that the case is a "low or medium risk" Commerce site should be sent to the DNR to facilitate file transfer.**

## **ATTACHMENT A**

### **Information Regarding PECFA**

The Petroleum Environmental Cleanup Fund Act (PECFA) is Wisconsin's reimbursement program for eligible cleanup costs at petroleum tank discharge sites. The Wisconsin Department of Commerce administers PECFA. Please see the Commerce web site for information on PECFA.

#### **Wisconsin Administrative Code Comm 47**

Comm 47, Petroleum Environmental Cleanup Fund, is the rule that covers PECFA program eligibility and reimbursement procedures. Important information on control of costs in Comm 47 includes:

1. comparison of at least three proposals for site investigations,
2. purchase of commodity services through competitive bids,
3. consideration of the costs and benefits of remediation alternatives,
4. use of environmental factors to determine the eligible range of remedial responses, and
5. use of site bundling and competitive bidding to reduce costs.

**\$40,000 Site Investigation Cap:** Comm 47 limits site investigation reimbursement to \$40,000 unless another amount has been approved by the Department of Commerce.

**Interim Action:** Additional activities outside the scope of investigation may be performed concurrently to contain or recover a discharge, usually free product, to minimize threats to the environment prior to remediation. Comm 47.337(2)(d) stipulates that \$5,000 maximum may be reimbursed by PECFA, but only if Commerce is notified prior to beginning the interim action activities. Interim action activities can be detailed in the site investigation report, or under separate cover.

**Sites Under \$60,000:** When Commerce receives a notification of a cost effective remediation per Comm 47.339(2) [total investigation and remedial action costs (including closure costs, but excluding interest) are under \$60,000], the information required in the site investigation report shall be included in a combined report covering investigation and remediation, which may also include a case closure request. Remedial action at most other PECFA sites will be publicly bid to establish the remediation and cost to closure.

Note: Upon receipt of a site investigation report by either Commerce or DNR, the review process is started, and the remediation will be publicly bid. If a site investigation report submittal is followed by a notification of a cost-effective remediation (i.e., remediation will be conducted without Department review), the investigation report will be considered an unnecessary interim environmental report per Comm 47.339(1)(a).

**PECFA-Eligible and Ineligible Releases:** A petroleum tank discharge site may contain tank systems that are PECFA-eligible and tanks/releases that are not eligible for reimbursement. Both types of releases may be investigated and remediated concurrently. However, per Comm 47.30(4)(b), a methodology for separation of eligible and ineligible costs must be submitted to the Department of Commerce for approval prior to claim submittal.

## ATTACHMENT B

### General Format for Data Tables

Per NR 716.15(2)(h):

- Table #, title, explanation of footnotes
- Units of measure same as relevant environmental standards
- Date(s) of measurements
- Comparison to relevant environmental standards

Recommended:

- Cumulative table of all sample results
- Data tables presented in format below

#### Example Presentation for Soil Analytical Results Summary

Add additional analyte columns as needed. Units are µg/kg unless otherwise indicated.

Table # \_\_, Title \_\_\_\_

Boring & Sample	Sample Date	Depth* (ft bgs)	PID (ppm eq)	GRO (mg/kg)	Benzene	Ethylbenzene	Toluene	Xylenes (total)
B1-S1	10/25/97	3.5-5.5	985	<b>1400</b>	<0.002	<b>46,000</b>	<b>28,000</b>	<b>226,000</b>
B1-S5	10/25/97	11-13	15	45	190	91	210	450
MW1-S3	12/15/98	6-8	5	<0.36	<20	<12	<11	<39
MW1-S5	12/15/98	11-13	4	<0.36	<20	<12	<11	<39
NR 720.09 RCLs				100	5.5	2,900	1,500	4,100
NR 746.06 Table 1 (free product indicator)				--	8,500	4,600	38,000	42,000
NR 746.06 Table 2 (direct contact standard)				--	1,100	--	--	--

Note: ft bgs = feet below ground surface

ppm eq = part per million equivalent

GRO = gasoline range organics

\*Data with asterisk indicates sample was taken at or below the historic measured high water table, based on monitoring well data.

#### Instructions for Soil Tables:

- ☐ Include contaminants without standards (i.e. all detected analytes). Extend table laterally if needed to include all analytes. Use maximum 8 1/2" x 14" paper size for tables that will be included in case closure requests.
- ☐ Include pre-site investigation soil sample results (i.e., site assessment results)
- ☐ For individual compounds, use uniform units of measure between reported analyte concentrations and regulatory RCLs
- ☐ Provide adjacent property results, if applicable
- ☐ Specify field screening methods (i.e., PID, FID)
- ☐ Specify method detection limit as <value (not "ND")
- ☐ Print concentrations below the RCL in black ink
- ☐ Print concentrations above the NR 720 RCLs in **bold** type (do not shade or cross hatch cells)
- ☐ If site specific RCLs (SSRCLs) are calculated, indicate values by inserting an additional row under NR 720.09 RCLs and indicate soil sample results that exceed the SSRCLs with *italic* font. See NR 720.19 for procedures and documentation requirements. Include documentation in Appendix E
- ☐ Add footnotes beneath table for relevant comments (e.g., operational problems with PID during sampling of B1 boring, pertinent laboratory notes, etc.)

**Example Presentation for Groundwater Analytical Results Summary**  
Add additional analyte columns as needed. Units are µg/kg unless otherwise indicated.

**Table # \_\_, Title: \_\_\_\_\_**

<b>MW-2</b>							
<b>Top of Well Screen (msl):</b>				<b>Length of Well Screen:</b>			
Sample Date	Benzene	Ethylbenzene	Toluene	Xylenes (total)	TMBs (total)	MtBE	Water Level* (ft msl)
4/3/95	<b>970</b>	180	<b>1,400</b>	750	297	<1.6	866.47
8/18/95	<b>4,600</b>	530	<b>3,000</b>	1,900	<2.7	<0.80	865.47
3/4/97	<b>870</b>	220	<b>1,300</b>	820	213	49	865.51
7/16/97	<b>4,400</b>	570	<b>5,400</b>	2,500	<b>600</b>	<1.6	865.75
6/12/98	<b>1,700</b>	280	<b>2,300</b>	1,200	316	<1.6	866.25
12/10/98	<b>4,200</b>	<b>800</b>	<b>5,400</b>	3,600	<b>620</b>	<1.6	865.58
7/9/99	<b>3,400</b>	560	<b>5,000</b>	2,220	<b>520</b>	<1.6	865.87
10/8/99	<b>3,600</b>	<b>720</b>	<b>5,000</b>	3,300	<b>640</b>	9.1	865.48
<b>MW-3</b>							
<b>Top of Well Screen (msl):</b>				<b>Length of Well Screen:</b>			
4/3/95	<b>860</b>	300	230	1,170	376	<0.21	866.30
8/18/95	<b>1,800</b>	<b>750</b>	<b>1,200</b>	3,000	<b>650</b>	<0.21	865.39
3/4/97	0.44	<0.12	<0.11	<1.8	<0.82	<0.21	865.46
7/16/97	<b>41</b>	6.3	0.69	22	10	<0.21	865.61
6/12/98	<b>12</b>	4.3	1.8	24	9.1	<0.21	866.13
12/10/98	<b>600</b>	190	5	293	245	<0.21	865.50
7/9/99	<b>70</b>	44	10	110	54	<0.21	865.75
10/8/99	<b>400</b>	85	4.4	62	51	<0.21	865.38
NR 140 ES	5.0	700	1,000	10,000	480	60	--
NR 140 PAL	0.5	140	200	1,000	96	12	--

\* Asterisk indicates water table well screen submerged below water table

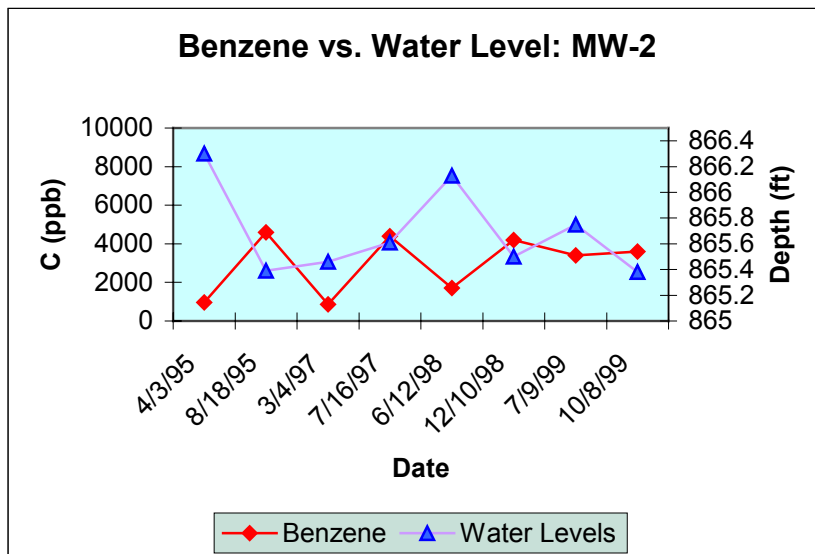
**Instructions for Groundwater Tables:**

- ☐ Include contaminants without standards (i.e. all detected analytes). Extend table laterally if needed to include all analytes. Use maximum 8 1/2" x 14" paper size for tables that will be included in case closure requests.
- ☐ Natural attenuation parameters can be added, or if space necessitates, a separate table with the same format could be used for these results.
- ☐ Should be cumulative tables organized on a per well basis, as shown above
- ☐ For individual compounds, use uniform units of measure for comparison of reported analyte concentrations to regulatory standards
- ☐ Water level elevations are to be included for all sample rounds
- ☐ Present data on Excel® spreadsheets; use 10 point font or larger; Agency may request information on disk
- ☐ Specify method detection limit as <value (not "ND")
- ☐ Highlight values above the ES in **bold** font (do not shade or cross hatch cells)
- ☐ Highlight values above the PAL in *italics* (do not shade or cross hatch cells)
- ☐ Add footnotes for relevant comments beneath and separate from cells in table (e.g., on \_\_ (date) well #2 could not be sampled due to \_\_\_\_, pertinent laboratory notes, etc.)
- ☐ Specify in footnotes whether samples have been filtered

### Recommended Graphic/Statistical Data Presentation

The graph represented below is only one of several that are recommended; other plots include concentration versus distance, and statistical spreadsheet analyses [see comments in Section 7: Data Tables, Graphs and Statistical Analyses, above, and the October 1999 WDNR Publication RR-614 – *Interim Guidance on Natural Attenuation for Petroleum Releases*]

#### Example Groundwater Elevation and Contaminant Concentration



Note: If shading or colors are used in graphs, there should be sufficient contrast so that details are not lost or obscured when the graph is photocopied.



## Example Presentation for Groundwater Elevations with Free Product Interim Action Results

Table # \_\_, Title \_\_

MW-1					
Surface Elevation		875.23	Free Product Abatement		
Top of Casing Elevation		874.76			
Top of Screen Elevation		870.23			
Bottom of Screen Elevation		860.23			
Measurement Date	DTW (Casing)	Groundwater Elevation	Product Thickness	Product Removed (gallons)	Cumulative Removal (gallons)
4/3/95	10.15	864.61	1.15	1.5	1.5
5/15/95	9.65	865.11	1.01	0.75	2.25
6/25/95	9.35	865.41	0.99	0.5	2.75
8/18/95	10.33	864.43	0.56	0.25	3
9/20/95	8.42	866.34	0.12	0	3
10/4/95	9.75	865.01	0	0	3
11/9/95	10.02	864.74	1.35	0.75	3.75
12/16/95	9.75	865.01	0.65	0.25	4

Note: 1) Measurements are in feet; elevations should be relative to mean sea level  
 2) DTW = depth to water (from top of casing)

### Instructions:

- ☐ Wells that have had interim action free product abatement should be plotted individually
- ☐ Footnote should indicate method of product thickness measurement

## Example Presentation for Groundwater Elevations

Table # \_\_, Title \_\_

MW-2			MW-3		
Surface Elevation		876.56	Surface Elevation		
Top of Casing Elevation		875.99	Top of Casing Elevation		
Top of Screen Elevation		870.85	Top of Screen Elevation		
Bottom of Screen Elevation		860.85	Bottom of Screen Elevation		
Measurement Date	DTW (Casing)	Groundwater Elevation	Measurement Date	DTW (Casing)	Groundwater Elevation
4/3/95	9.69	866.3			
8/18/95	10.60	865.39			
3/4/97	10.53	865.46			
7/16/97	10.38	865.61			
6/12/98	9.86	866.13			
12/10/98	10.49	865.5			
7/9/99	10.24	865.75			

Note: 1) Measurements are in feet; elevations should be relative to mean sea level  
 2) DTW = depth to water (from top of casing)

